

ponding "eyes" on the roller is used. As the under charts are wanted the upper ones can be thrown over the top and out of the way.

A word in regard to the preparation of the India ink. If you follow the ordinary directions, viz: to rub down the quantity needed in a porcelain dish, after grinding away till your arms ache, you will have enough perhaps to outline one illustration and probably half of that will evaporate before you are ready to use it. Instead, take about half a stick break it into pieces the size of a grain of wheat and allow it to soak over night in just enough water to cover it. When you are ready to use dilute until it will just leave a perfectly black mark. If at all lumpy rub to a smooth paste with a flat ended stick. Apply with a camel's hair or sable brush—one tapering to a fine point will be found easiest to handle. Let me assure any who care to attempt the manufacture that it takes very little artistic talent, very little time and very little trouble to produce results that will astonish the maker. (No sarcasm) These charts are cheap, portable and efficient; qualities possessed by none of the more elaborate ones of the publishers. I shall be glad to give any further details of construction if any one so desires.—C. R. BARNES, *Purdue Univ., LaFayette, Ind.*

**The Flora of Essex County, Massachusetts,** John Robinson, Essex Institute, Salem, 1880.—An elegant Catalogue of 200 pages. Those who are familiar with Prof. Robinson's methods will not need to be told that this Catalogue is a most thorough and admirable work. No finer Catalogue has been published since Paine's model catalogue of the plants of Oneida County, N. Y., and could the lamented Oakes, to whose memory it is so gracefully dedicated, have lived to see this tribute to the flora of a region "where he was born, and where he loved to botanize," his pleasure would have been very great indeed.

Tracy's modest "Studies of the Essex Flora" was only partial in its character, being limited to the vicinity of Lynn, and containing only the flowering plants of that region; but the present Catalogue covers the entire County, and contains the lower, as well as the higher orders of plants.

Combining within her limits sea shore and wood land of varied character, Essex County offers rare attractions to a botanist, and how well sea-shore and wood land, meadow and hill have been gleaned for treasures this splendid record attests. 1694 species and 140 varieties are enumerated representing 115 orders.

The remarkable resemblance between the wood lands of Essex and those of New Hampshire has often been noticed by visiting botanists, and it is not surprising to find recorded here many plants common to both regions.

The writer has passed many pleasant hours in the Essex woods with the author, the recollection of which he will long cherish, and it gives him much pleasure now to bear witness to the zeal and fidelity with which the author has devoted himself to this work of the "Essex Flora," the completeness with which it has been consummated, and the very elegant form in which it is presented.

Full credit is given to all who have aided the author in any way,

and the names of Gray, Watson, Goodale, Farlow, Austin, Halstead, Faxon and Collins ensure accuracy of determination.

The Catalogue will serve to stimulate the botanical section of the Middlesex Institute which has in contemplation the publication at an early day of a complete Catalogue of the Middlesex Flora.—G. E. D.

**Notes from Arkansas.**—Hearing of some very large trees of Chinquapin in Arkansas, that were reported as 15 and 18 inches in diameter, I went to see them on the Washita river.

The tree is not uncommon about Hot Springs, Ark., near the base of the mountains many were seen that appeared to be 12 or more inches through and one that was carefully measured gave a circumference of six feet plump, which is equal to two feet diameter at stump high. I was informed that they were used in some places for rail timber, but all that I saw were low-headed and could furnish but one cut for such purpose.

When conversing with Dr. Engelman respecting these trees he reminded me of a mistake made by a distinguished botanist, who having heard of these trees, and possibly seen them in the winter mistook them for *Castanea vesca*. It is still believed that our chestnut is not found west of the Mississippi.

In the same region *Magnolia tripetala* was seen of large size, reaching a diameter of eight inches.

About Hot Springs the pines were all *P. mitis*, and the line of the St. Louis, Iron Mt. and Southern Railway about Malvern Station seemed to be the meeting place of *P. mitis* and *P. australis*, upon the borders of the metamorphic rocks and the Cretaceous and Tertiary formations. Near this latter place the *Magnolia grandiflora* and *Ilex opaca* are found. Near Hot Springs seven oaks were seen; *Q. alba*, *Q. Muhlenbergii*, *Q. nigra*, *Q. falcata*, *Q. tinctoria*, *Q. rubra*, *Q. obtusiloba*. *Q. imbricaria*, at Iron Mt., Mo., had leaves  $8\frac{5}{8}$  inches long including the short petiole, by  $5\frac{3}{4}$  inches wide.—JNO. A. WARDER, *North Bend, Ohio*.

**Rudbeckia rupestris, n. sp.**—Stem ( $3^{\circ}$ – $5^{\circ}$ ) and leaves sparingly hairy, branches elongated and terminated by single large heads; upper leaves ovate lanceolate, coarsely serrate, sessile, partly clasping, the lower 3 parted, with deep rounded sinuses, the lower lobes standing out almost halberd shaped, with margined petioles, the lowest 4' in length and breadth, on long petioles (3'), radical leaves undivided, rhomboid-oval; disk large ( $\frac{3}{4}$ '), globular, black purple; rays 10–13, 1'– $1\frac{1}{2}$ ' long, linear-oblong, uniform orange yellow; involucre scales few, spreading, long lanceolate, hirsute, leaf like; chaff of the disk toothed tapering into a slender awn.

Differs from *R. triloba* in the thicker, larger and more halberd shaped leaves, in the fewer (3–5) but much larger heads, and longer rays with no change of color near the disk; and from *R. subtomentosa*, in its smoother, thicker, and broader leaves, in the color of the rays, and in the awned chaff of the disk.

Found abundantly on the rocky slopes of "Little Roan," N. C.,